

Work Order ID 158482

Thursday, March 23, 2017 1:42:44 PM

158482

Page 1

Item ID: D119-796-141 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: FWD Crosstube Installation without Step (no hardware)
 Start Date: 4/6/2017 Start Qty: 1.00 ***1*** Cust Item ID:
 Required Date: 5/3/2017 Req'd Qty: 1.00 ***1*** Customer:
 Reference: scheduled/stock **DAS 21 9-00**

Approvals: Process Plan: **DAS 21 9-00** Date: **MAR 23 2017** Tooling: Date: Run Start ***NR1***
 QC: Date: SPC (Y/N): Date: Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D119-796-141	H

110 Document Control 0.00
110
 DC Memo 0.02
 Doc.Control -USB or Paperwork Photocopy bluefile and create labels as per PPP D119-796-141 chg 004

N/A

120 Packaging 0.00
120
 Packaging Memo 0.02
 Packaging

N/A

130 BENDING MACHINE - CROSSTUBES 1.63
130
 CNC Bend 2 Memo 0.94
 CNC Alpha 160 Bender Bend tube as per Dwg D119-796-141 using CNC bender program

TW 1705-30

Work Order ID 158482

Thursday, March 23, 2017 1:42:44 PM

158482

Page 2

Item ID: D119-796-141 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: FWD Crosstube Installation without Step (no hardware)
Start Date: 4/6/2017 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 5/3/2017 Req'd Qty: 1.00 ***1*** Customer:
Reference: scheduled/stock

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	QC15- Crosstube Dimensional Check	0.00							
140									
QC	Memo	0.02							
Quality Control									
145		0.00							
145									
Crosstubes	Memo	1.86							
Crosstubes	1- CUT TUBE AT HEIGHT ON FAI SHEET								
	2- VERFY HEIGHT: <u>21.625</u>								
	BY QC15 LEVEL INSPECTOR <u>JW</u>								
	3- DEBURR CUT SURFACE								

DP2 17-06-01

DAS 38 9-89
MAY 31 2017

Work Order ID 158482

Thursday, March 23, 2017 1:42:44 PM

158482

Page 3

Item ID: D119-796-141 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: FWD Crosstube Installation without Step (no hardware)
Start Date: 4/6/2017 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 5/3/2017 Req'd Qty: 1.00 ***1*** Customer:
Reference: scheduled/stock

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150	Crosstubes	0.70							
150	Crosstubes	1.75							
Crosstubes	Memo								
	***** ENSURE PROPER JIG POSITIONING *****								
	***** ENSURE PROPER JIG POSITIONING *****								
	1-DRILL TUBE AS PER DWG USING DT10087								
	2- DRILL RIVET HOLES USING DT8787 FWD								
	3- DEBURR AND C'SINK RIVET HOLES AS PER DWG								
	4- FLIP TUBE, REPEAT STEP 2 AND 3								
	5- SCRIBE PART# AND BATCH# USING VIBRATING STYLUS ON INSIDE OF CUFF AS PER DWG D119-796-141								

[Handwritten signatures and date 17-06-08 are present in the right margin of the table area.]

Thursday, March 23, 2017 1:42:44 PM

158482

Page 4

Accept

N900040100

Setup Start *NS1*

Stop *NS2*

Item Name: FWD Crosstube Installation without Step (no hardware)

Start Date: 4/6/2017 **Start Qty:** 1.00 ***1***

Cust Item ID:

Required Date: 5/3/2017 **Req'd Qty:** 1.00 ***1***

Customer:

Reference: scheduled/stock

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

160

0.00

160

1.54

HandFXtube

Memo

Hand Finishing Crosstubes

1- INSPECT AND REMOVE ALL MARKS FROM TUBE WITHIN LIMITS
ON DWG D119-796-141

*** IMMEDIATELY AFTER GRINDING ***

2- PRESSURE WASH X-TUBE INSIDE AND OUT

3- ALODINE AND ACID ETCH X-TUBE INSIDE AND OUT AS PER QSI005.

4- Verify grinding marks By:

175

QC7-Inspect Chemical Conversion Coat

0.00

175

OC

Memo

0.02

Quality Control

Work Order ID 158482

Thursday, March 23, 2017 1:42:44 PM

158482

Page 5

Item ID: D119-796-141 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: FWD Crosstube Installation without Step (no hardware)
Start Date: 4/6/2017 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 5/3/2017 Req'd Qty: 1.00 ***1*** Customer:
Reference: scheduled/stock

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180 *180* Outsource2 Outsource process - NDT	 Memo *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Liquid Penetrant Inspection as per QSI 038Or Issue P/O: <u>36567</u> LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order	0.00 120.00				<u>1</u>		<u>JUN 13 2017</u> <u>DAS</u> <u>13</u> <u>9-89</u>	
190 *190* Packaging Packaging Packaging	 Memo Ensure copy of NDT results attached to work order.	0.00 0.02						<u>1X 50776-13</u>	
200 *200* QC Quality Control	 Memo *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Inspect for damage & ensure results are as per Dwg D119-796-141	0.00 0.02						<u>① 1709-12 RD</u> <u>DAS</u> <u>10</u> <u>2017</u>	

Work Order ID 158482

Thursday, March 23, 2017 1:42:44 PM

158482

Page 6

Item ID: D119-796-141 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: FWD Crosstube Installation without Step (no hardware)
Start Date: 4/6/2017 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 5/3/2017 Req'd Qty: 1.00 ***1*** Customer:
Reference: scheduled/stock

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
230		0.00							DAS 41 9-89
230	SprayPaint					1			
SprayPaint	Memo	1.36							
Spray Painting	***VERIFY BY <u>DAS</u> BATCH # TO MATCH W/O <u>158482</u> <u>41</u>								
	***VERIFY BY <u>9-89</u> PART # TO MATCH W/O <u>158482</u>								
	MASK SCRIBE B# & P# AND VERIFY								
	1- Prime Inside of tube.								
	2- Install nut plates as per dwg (D2873-043)								
	3- Mask cuffs per note#2.								
	4- Prime exterior of tube per QSI005.								
	Primer Batch: <u>136887</u>								
	Start Time: <u>100</u>								
	Finish Time: <u>200</u>								

JUN 17 2017

Thursday, March 23, 2017 1:42:44 PM

Page 8

Finish: 17-8-4

SEP 01 2017

Work Order ID 158482

Thursday, March 23, 2017 1:42:44 PM

158482

Page 9

Item ID: D119-796-141 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: FWD Crosstube Installation without Step (no hardware)
Start Date: 4/6/2017 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 5/3/2017 Req'd Qty: 1.00 ***1*** Customer:
Reference: scheduled/stock

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
244	QC5- Inspect part completeness to step on W/O	0.00							
244									
QC	Memo	0.02							
Quality Control	***VERIFY BY <u>DAS</u> BATCH # TO MATCH W/O								
	***VERIFY BY <u>9</u> PART # TO MATCH								
	W/O <u>9-89</u>								

① 17.09.05 19 DAS 9 9-89

Work Order ID 158482

Thursday, March 23, 2017 1:42:44 PM

158482

Page 10

Item ID: D119-796-141 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: FWD Crosstube Installation without Step (no hardware)
Start Date: 4/6/2017 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 5/3/2017 Req'd Qty: 1.00 ***1*** Customer:
Reference: scheduled/stock

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
246	Spray Painting per QSI005 4.2	0.00							DAS 41 9-89
246						1			
SprayPaint	Memo	0.33							
Spray Painting	***VERIFY BY <u>DAS</u> BATCH # TO MATCH W/O <u>158482</u>								
	***VERIFY BY <u>41</u> PART # TO MATCH W/O <u>158482</u> 9-89								
	MASK SCRIBE B# & P# AND VERIFY								
	1- Remove all non-fixed hardware and clean any excess proseal.								
	2- Scuff tube with Scotch Brite 7447.								
	3- Mask cuff per note#2.								
	4- Prime as per dwg and QSI005								
	Primer Batch: <u>137487</u>								
	Start Time: <u>700</u>								
	Finish Time: <u>800</u>								
	5- Apply matte clear as per dwg and QSI005								
	Clear Batch: <u>136205</u>								
	Start Time: <u>1100</u>								
	Finish Time: <u>1133</u>								

SEP 10 2017

Work Order ID 158482

Thursday, March 23, 2017 1:42:44 PM

158482

Page 11

Item ID: D119-796-141 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: FWD Crosstube Installation without Step (no hardware)
Start Date: 4/6/2017 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 5/3/2017 Req'd Qty: 1.00 ***1*** Customer:
Reference: scheduled/stock

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
248	Spray Painting per QSI005 4.2	0.00							DAS 41 9-89
248						1			
Spray Paint	Memo	0.00							
Spray Painting	***VERIFY BY <u>DAS</u> BATCH # TO MATCH W/O <u>158482</u> <u>41</u>								
	***VERIFY BY <u>9-89</u> PART # TO MATCH W/O <u>158482</u>								
	MASK SCRIBE B# & P# AND VERIFY								
	1- Mask underside of tube as per dwg. Mask cuff per note#2.								
	2- Scuff tube with Scotch Brite 7447								
	3- Paint outside of crosstube								
	Paint Batch: <u>13896</u>								
	Start Time: <u>700</u>								
	Finish Time: <u>800</u>								

SEP 10 2017

Work Order ID 158482

Thursday, March 23, 2017 1:42:44 PM

158482

Page 12

Item ID: D119-796-141 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: FWD Crosstube Installation without Step (no hardware)
Start Date: 4/6/2017 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 5/3/2017 Req'd Qty: 1.00 ***1*** Customer:
Reference: scheduled/stock

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
250	QC14- Inspect Spray Paint Crosstubes	0.00							
250									
QC		0.00							
Quality Control	Memo ***VERIFY BY _____ BATCH # TO MATCH W/O ***VERIFY BY _____ PART # TO MATCH W/O _____								

DAG
78
3-23

Thursday, March 23, 2017 1:42:44 PM

Page 13

EXP: 10/17

17-09-24

Work Order ID 158482

Thursday, March 23, 2017 1:42:44 PM

158482

Page 14

Item ID: D119-796-141 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: FWD Crosstube Installation without Step (no hardware)
Start Date: 4/6/2017 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 5/3/2017 Req'd Qty: 1.00 ***1*** Customer:
Reference: scheduled/stock

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
260	QC5- Inspect part completeness to step on W/O	0.00							
260									
QC	Memo	0.02							
Quality Control	***RE-CHECK TORCQUE ON CLAMP AFTER PROSEAL HAS CURED AS PER DWG.***								
	***VERIFY BY <u>PD</u> BATCH # TO MATCH W/O								
	***VERIFY BY <u>PD</u> PART # TO MATCH W/O								
	MASK SCRIBE B# & P# AND VERIFY								
290		0.00							
290	Packaging								
Packaging	Memo	0.00							
Packaging	Identify and pack for shipping as per PPP D119-796-141								
	On w/o 159003								

SEP 15 2017

Work Order ID 158482

Thursday, March 23, 2017 1:42:44 PM

158482

Page 15

Item ID: D119-796-141 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: FWD Crosstube Installation without Step (no hardware)
Start Date: 4/6/2017 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 5/3/2017 Req'd Qty: 1.00 ***1*** Customer:
Reference: scheduled/stock

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
300	QC21- Final Inspection - Work Order Release	0.00							
300									
QC	Memo	0.10							
Quality Control									

DAS
21
9-89

Uy

SEP 19 2017

Picklist Print

Page 1

Thursday, March 23, 2017 1:42:47 PM

Work Order ID: 158482

158482

Parent Item: D119-796-141

D119-796-141

Parent Item Name: FWD Crosstube Installation without Step (no hardware)

Start Date: 4/6/2017

Required Date: 5/3/2017

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP REV:A 14.09.03 NEW ISSUE DD VERF:JLM IPP
REV:B 14.10.15 AS PER REV.B DD VERF:JLM IPP REV:C
14.11.19 AS PER REV.C DD VERF:JLM IPP REV:D 14.12.12
AS PER REV.pd1 DD VERF:JLM IPP REV:E 15.02.11 AS PER
REV F JLM VERIFIED BY:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D5305-1		Manufactured	No			242	Each	19.0000	2	2			
D5305-1									**				

Shim

Location	Loc Qty	Loc Code
LG056	19	
155334	19	

D119-796-141TRN

Manufactured No

D119-796-141TRN

Crosstube Turning Detail

Location	Loc Qty	Loc Code
LG014	6	
149556	1	
153552	1	
153555	1	
154834	1	
154835	1	
154837	1	

D2873-043

Manufactured No

D2873-043

Nut Plate Assembly

Location	Loc Qty	Loc Code
LG050	88	
152401	10	
154806	20	
155504	29	
156196	29	

DAS
41
9-89
AUG 30 2017

2
DP2 17-05-38

DAS
41
9-89
JUN 17 2017

4

Picklist Print

Thursday, March 23, 2017 1:42:47 PM

Work Order ID: 158482

158482

Parent Item: D119-796-141

D119-796-141

Parent Item Name: FWD Crosstube Installation without Step (no hardware)

Start Date: 4/6/2017

Required Date: 5/3/2017

Start Qty: 1.00

Required Qty: 1.00

D5123-3

Manufactured No

242

Each

410.0000

4

4

D5123-3

Clamp Cushion

DAS
41
9-89

JUL 12 2017

Location

Loc Qty

Loc Code

LG052

400

153233

400

4

LG055

10

152482

10

D5124-1

Manufactured No

242

Each

24.0000

2

2

D5124-1

Fwd Support

DAS
41
9-89

JUL 12 2017

Location

Loc Qty

Loc Code

LG054

24

152391

7

1

155857

8

156435

9

1

D5152-041

Manufactured No

242

Each

10.0000

2

2

D5152-041

Fwd Post Mount Assembly

DAS
41
9-89

AUG 30 2017

Location

Loc Qty

Loc Code

LG055

10

152470

1

154801

9

Picklist Print

Page 3

Thursday, March 23, 2017 1:42:47 PM

Work Order ID: 158482

158482

Parent Item: D119-796-141

D119-796-141

Parent Item Name: FWD Crosstube Installation without Step (no hardware)

Start Date: 4/6/2017

Required Date: 5/3/2017

Start Qty: 1.00

Required Qty: 1.00

CR3212-4-08

Purchased

No

230

Each

129.0000

16

16

DAS
41
9-89

JUN 17 2017

CR3212-4-08

RIVET

**

Location

Loc Qty

Loc Code

CCK003

101

m134848

1

m136442

100

16

LG056

28

m135536

28

MS21920-24

Purchased

No

252

Each

61.0000

4

4

DAS
41
9-89

JUL 12 2017

MS21920-24

Clamp

**

Location

Loc Qty

Loc Code

FG

2

117998

2

LG050

59

m134502

5

m136016

30

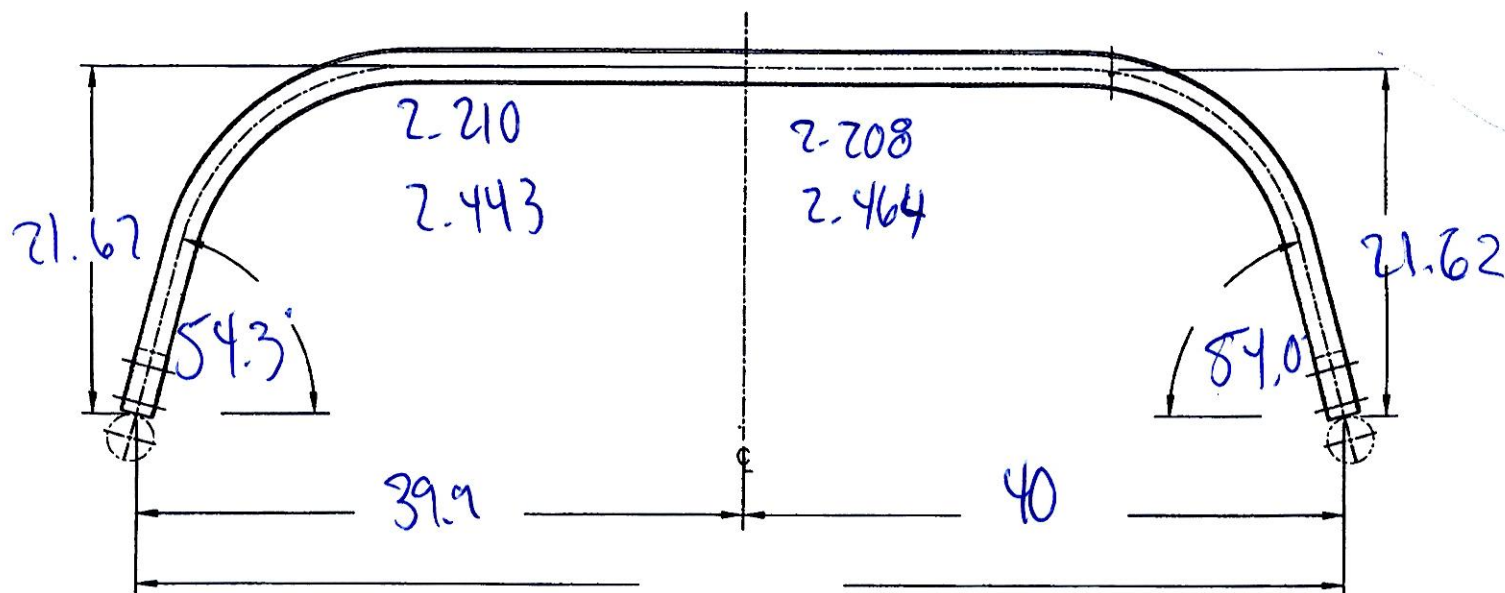
4

m136986

24

DART AEROSPACE LTD		Work Order:	158483
Description: Crosstube Fwd, with Step		Part Number:	D119-796-141
Inspection Dwg: D119-796-141 Rev: H		Page 1 of 1	

Required Dimension	Min	Max
Height	21.490	21.750
1/2 Span	39.820	40.080
Angle	54°	57°
Total Span	79.640	80.160
Bending Passes	8	--
Crushing	--	6.8%



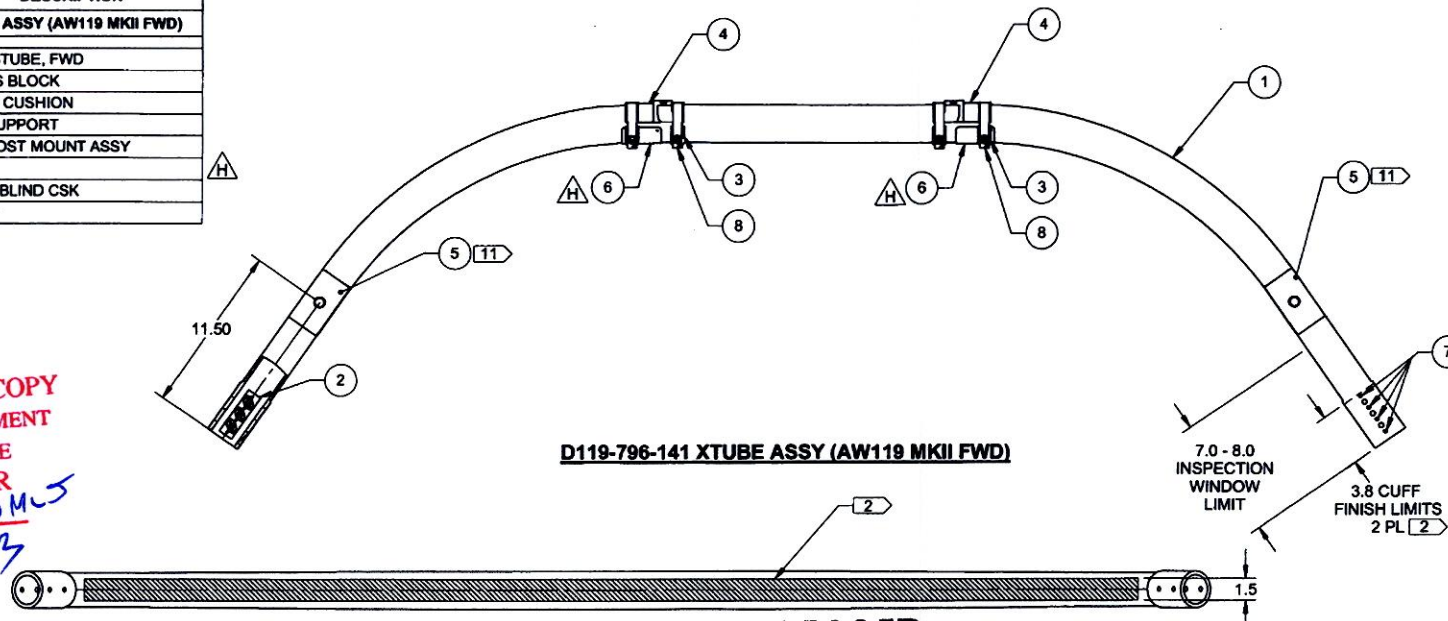
	Side A	Side B
Bending Passes	8	8
Crushing	5.5%	5.5%
Comments		

QC15 Inspection	DAS 36
Date	MAY 31 2017

Rev	Date	Change	Revised by	Approved
A	15.04.14	New Issue	KJ	
B	15.11.12	Dwg Rev updated	KJ	
C	16.01.15	Dwg Rev updated	KJ	

ITEM	QTY	P/N	DESCRIPTION
	X	D119-796-141	XTUBE ASSY (AW119 MKII FWD)
1	1	D119-796-141BND	CROSSTUBE, FWD
2	4	D2873-043	RADIUS BLOCK
3	4	D5123-3	CLAMP CUSHION
4	2	D5124-1	FWD SUPPORT
5	2	D5152-041	FWD POST MOUNT ASSY
6	2	D5305-1	SHIM
7	16	CR3212-4-08	RIVET, BLIND CSK
8	4	MS21920-24	CLAMP

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 158482M-5
190323



D119-796-141 XTUBE ASSY (AW119 MKII FWD)

RELEASED
2015-11-04
EW 15-692

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: APPLY MATTE CLEAR COAT PER QSI 005 4.2
MASK D5124-1 FWD SUPPORTS, D5305-1 SHIMS AS WELL AS UNDERSIDE OF CROSSTUBE AS SHOWN (B3-1, HATCHED AREA),
PAINT OUTSIDE PER DART QSI 005 4.2 AFTER APPLYING CLEAR COAT
DO NOT APPLY FINISH (PAINT OR CLEAR COAT) TO CUFFS IN LOCATION SHOWN, MASK PRIOR TO FINISHING
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: IDENTIFY USING PART NUMBER "D119-796-141" AND BATCH NUMBER ON INSIDE OF CUFF PER QSI 044 6.4
- 7) WEIGHT: 18.54 lbs
- 8) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE.
THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM DEFECTS SUCH AS SCRATCHES, NICKS OR DENTS.
DEFECTS UP TO 0.005 MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 9) PRIOR TO FINISHING, ABRASE MATING SURFACES OF D5124-1 FWD SUPPORTS AND CROSSTUBE WITH SCOTCH BRITE 7447 RED AND REMOVE RESIDUE WITH DUPONT 4105S WASHNWIPE DEGREASER. APPLY A 0.1 MIN THK LAYER OF PROSEAL 890 ON THE INSIDE CONCAVE SURFACE OF THE D5124-1 FWD SUPPORTS AND INSTALL AT AN 8.4° OFFSET FROM THE CROSSTUBE BENDING PLANE. INSTALL THE MS21920-24 CLAMPS AND D5123-3 CLAMP CUSHIONS WHILE WET.
- 10) TORQUE MS21920 CLAMPS 80 - 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY, THE NUT IS FACING AFT AND HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.
- 11) PRIOR TO FINISHING, ABRASE MATING SURFACES OF CROSSTUBE AND D5152-041 WITH SCOTCH BRITE 7447 RED AND REMOVE RESIDUE WITH DUPONT 4105S WASHNWIPE DEGREASER. INSTALL D5152-041 WITH LAYER OF PROSEAL 890 ON INSIDE CONCAVE SURFACE, 0.1 MIN THK. LOCATE D5152-041 USING TOOL DT10089.
- 12) PRIOR TO FINISHING, ABRASE MATING SURFACES OF CROSSTUBE AND D5305-1 SHIM WITH SCOTCH BRITE 7447 RED AND REMOVE RESIDUE WITH DUPONT 4105S WASHNWIPE DEGREASER. INSTALL D5305-1 SHIM WITH LAYER OF PROSEAL 890 ON INSIDE CONCAVE SURFACE, 0.1 MIN THK. USE ADDITIONAL TEMPORARY MS21920-24 CLAMP TO APPLY CLAMPING PRESSURE FOR 72 HOURS.

H	ADD D5305-1 SHIM, D6024-103 WAS D6005-103, D5124-1 NOW INSTALLED ON PRIMER	AP	15.10.13
G	FINISHING ORDER ADJUSTED, CR3212-4-08 WAS -.07, CUFF DIA TOLERANCE INCREASED TO +/- 0.005	AP	15.04.24
F	REMOVED PRIME/ PAINT ON CUFFS, 2.516 WAS 2.500 (C8-5)	AP	15.02.03
E	D5152-041 FWD STEP POST ASSY WAS D5150-1 STEP POST, SCOTCH BRITE 7447 RED WAS 180 GRIT SANDPAPER, ANGLE (B7-2) DIMENSIONED FROM NEW DATUM	DB	15.01.15
D	ADD D5150-1 STEP POST (2X), MOVED INSPECTION WINDOW DETAIL TO SHEET 1, MODIFIED NOTES ON SHT 1 & 3	DB	14.11.25
C	CR3212-4-07 RIVETS WERE CR3212-4-09, 7.5 DEG CUFF ANGLE OFFSET REMOVED (SHT 3), CUFF DIAMETER ON D119-796-141TRN REDUCED TO 2.500, ADDED INSPECTION WINDOW (B7-3), ADDED SHT 4	AP	14.10.23
B	ADDED D2873-043 RADIUS BLOCK, CR3212-4-09 RIVETS, ADDED SKIDTUBE REFERENCE FOR LOCATING CUFF HOLES, RE-ORGANIZED NOTES AND REMOVED REDUNDANT INFORMATION	AP	14.09.02
A	NEW ISSUE	AP	14.08.09
REV.	DESCRIPTION	BY	DATE
DESIGN	AP		
DRAWN	AP		
CHECKED	AJS		
MFG. APPR.	JLM		
APPROVED	WM		
DE APPR.	DS		
DATE	15.10.13		

DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

DRAWING NO.
D119-796-141

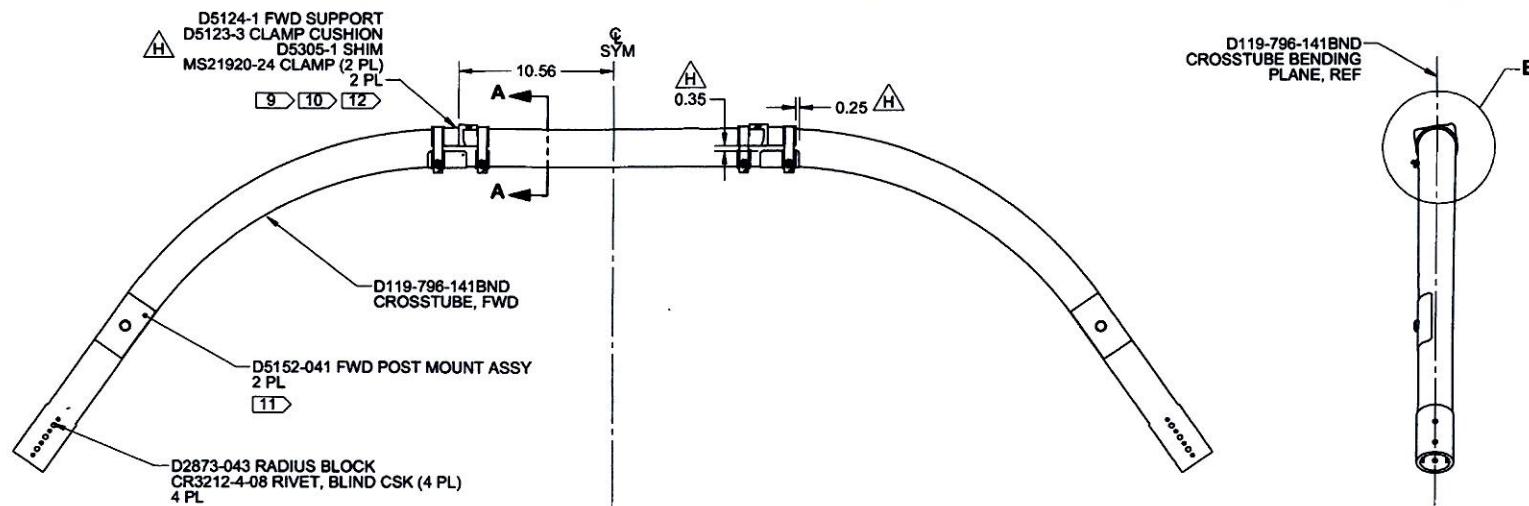
REV. H
SHEET 1 OF 6

TITLE
XTUBE ASSY (AW119 MKII FWD)

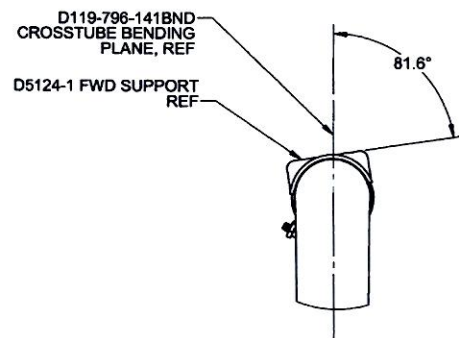
SCALE
NTS

COPYRIGHT © 2014 BY DART AEROSPACE LTD
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT
WRITTEN PERMISSION FROM DART AEROSPACE LTD.

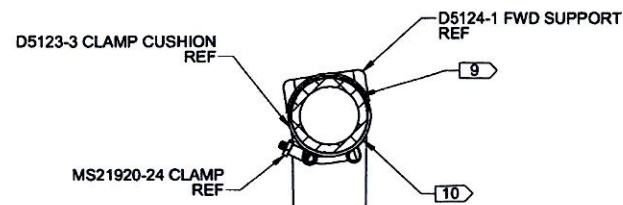
8 7 6 5 4 3 2 1



D119-796-141 XTUBE ASSY (AW119 MKII FWD)



DETAIL B
SCALE 2X



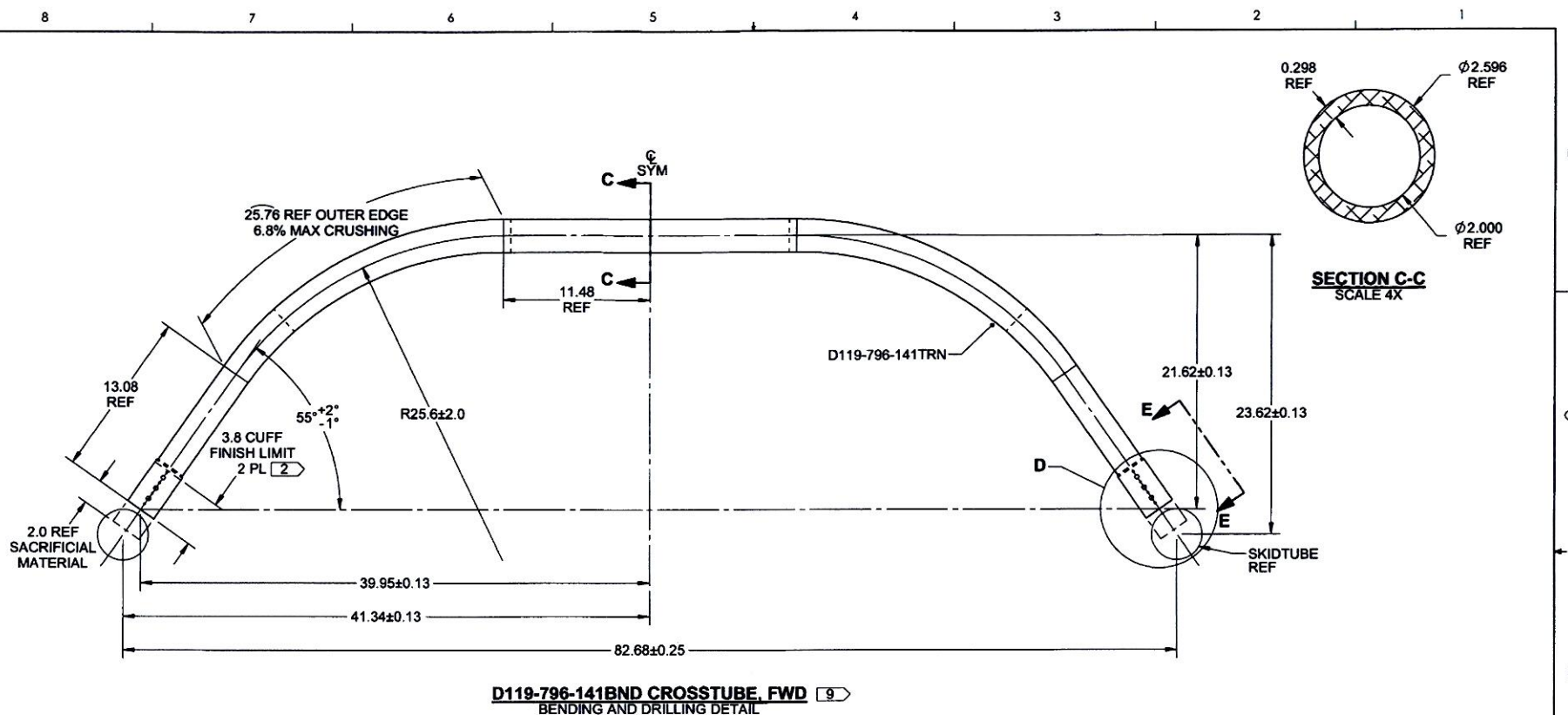
SECTION A-A
SCALE 2X

RELEASED
2015-11-04

APPROVED

DESIGN	AP	DART AEROSPACE LTD	
DRAWN	AP	HAWKESBURY, ONTARIO, CANADA	
CHECKED	AJS	DRAWING NO.	REV. H
MFG. APPR.	JLM	D119-796-141	SHEET 2 OF 6
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	XTUBE ASSY (AW119 MKII FWD)	NTS
DATE	15.10.13	COPYRIGHT © 2014 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

8 7 6 5 4 3 2 1



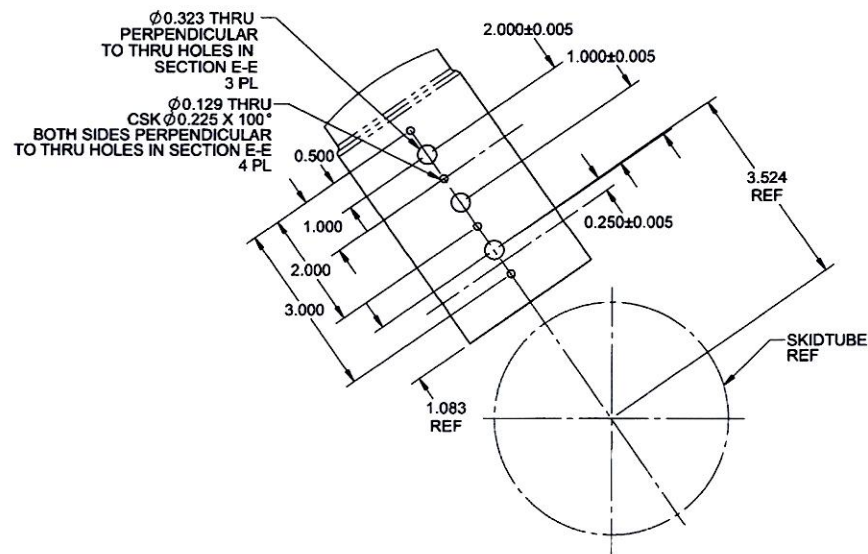
NOTES:

- 1) MATERIAL: MADE FROM D119-796-141TRN
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
DO NOT APPLY PRIMER TO CUFFS IN LOCATION SHOWN, MASK PRIOR TO FINISHING
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 16.70 lbs
- 8) PART IS SYMMETRICAL ABOUT CENTERLINE
- 9) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6.8% BASED ON OD.
- 10) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038
- 11) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM DEFECTS SUCH AS SCRATCHES, NICKS OR DENTS. DEFECTS UP TO 0.005 MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.

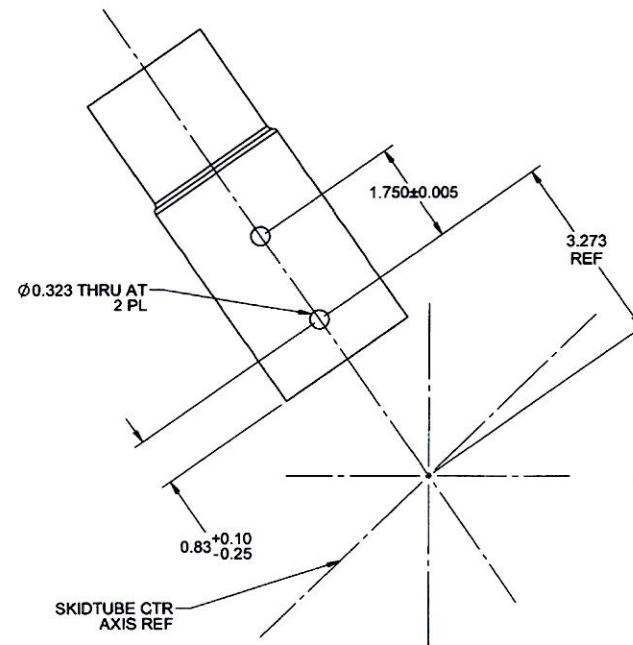
RELEASED
2015-11-04

APPROVED

DESIGN	AP	DART AEROSPACE LTD	
DRAWN	AP	HAWKESBURY, ONTARIO, CANADA	
CHECKED	AJS	DRAWING NO.	REV. H
MFG. APPR.	JLM	D119-796-141	SHEET 3 OF 6
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	XTUBE ASSY (AW119 MKII FWD)	NTS
DATE	15.10.13	COPYRIGHT © 2014 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL, AND IS SUPPLIED ON THE EXPRESS UNDERSTANDING THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD	



VIEW D
SCALE 4X



VIEW E-E
SCALE 2X

RELEASED
2015-11-04

APPROVED

DESIGN	AP	DART AEROSPACE LTD	
DRAWN	AP	HAWKESBURY, ONTARIO, CANADA	
CHECKED	AJS	DRAWING NO.	REV. H
MFG. APPR.	JLM	D119-796-141	SHEET 4 OF 6
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	XTUBE ASSY (AW119 MKII FWD)	NTS
DATE	15.10.13	COPYRIGHT © 2014 BY DART AEROSPACE LTD	
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.			

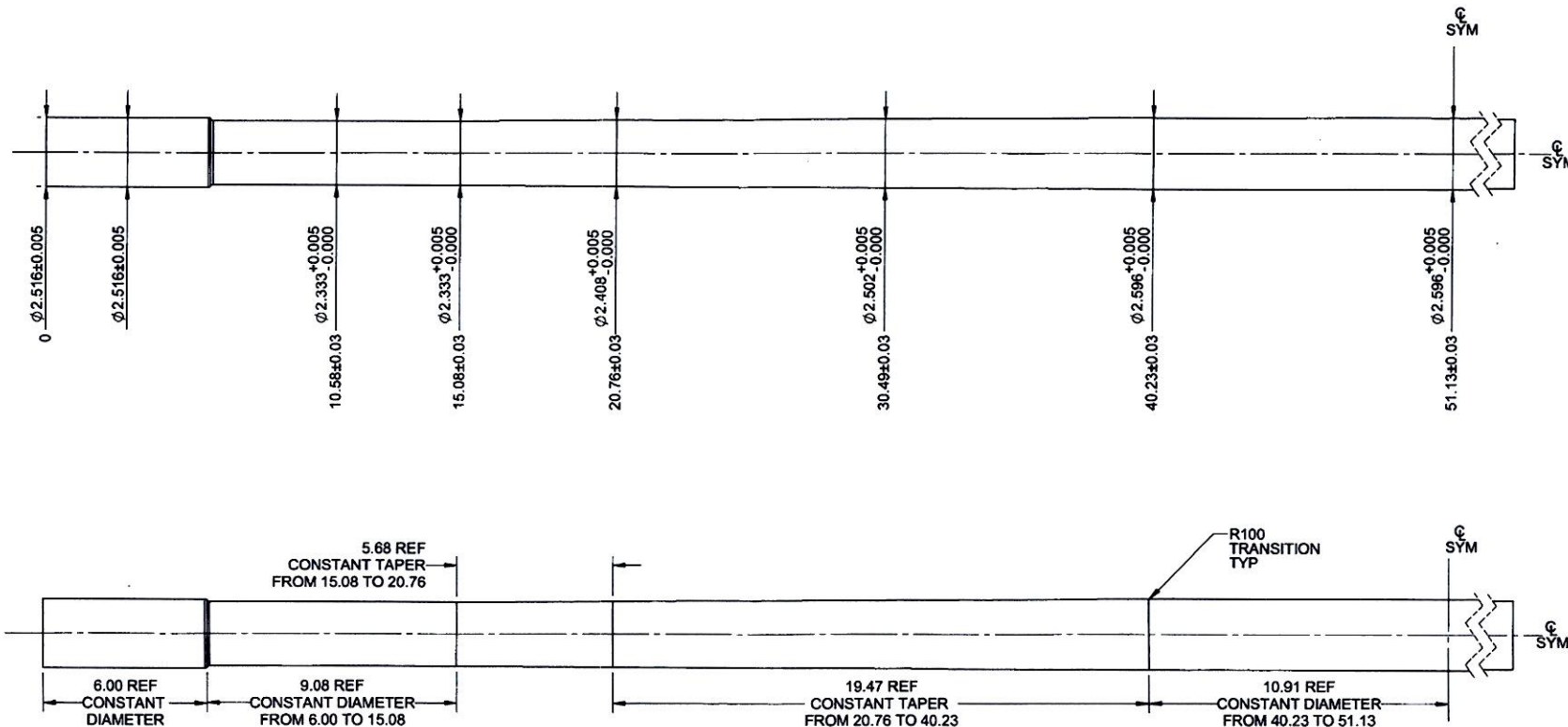
8 7 6 5 4 3 2 1

D

C

B

A



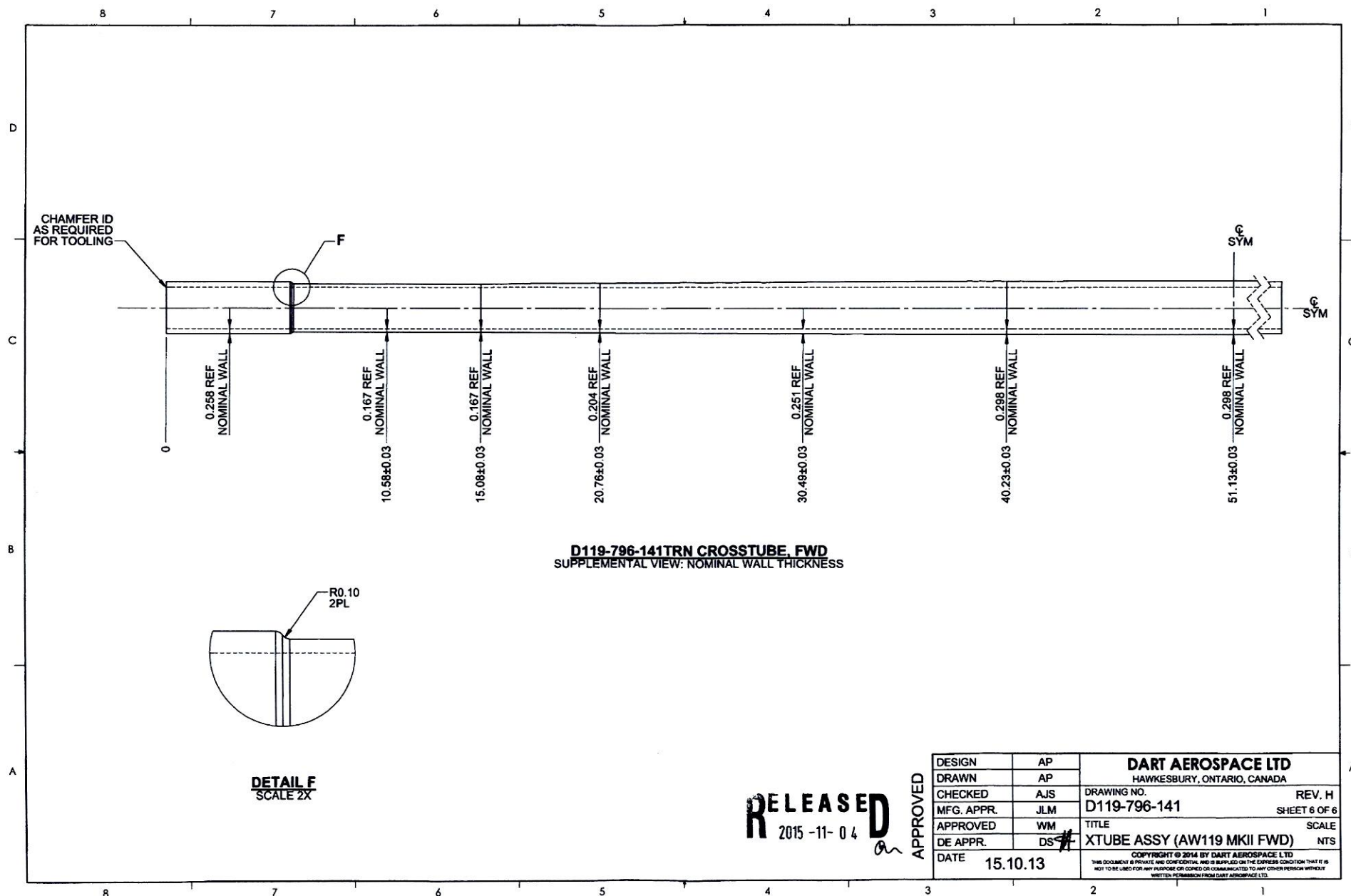
D119-796-141TRN CROSSTUBE, FWD

- NOTES:**
- 1) MATERIAL: MANUFACTURE FROM D6024-103 (PREFERRED) OR D6005-103
FINISHED LENGTH = 102.26 ± 0.020 (BEFORE BENDING/TRIMMING)
 - 2) FINISH: NONE
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
 - 6) IDENTIFICATION: NONE
 - 7) WEIGHT: 16.70 lbs
 - 8) PART IS SYMMETRICAL ABOUT CENTERLINE

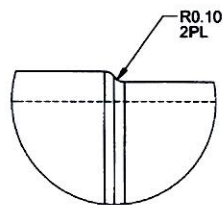
RELEASED
2015-11-04
APPROVED

DESIGN	AP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AP	DRAWING NO.	REV. H
CHECKED	AJS	D119-796-141	SHEET 5 OF 6
MFG. APPR.	JLM	TITLE	SCALE
APPROVED	WM	XTUBE ASSY (AW119 MKII FWD)	NTS
DE APPR.	DS	COPYRIGHT © 2014 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	
DATE	15.10.13		

8 7 6 5 4 3 2 1



D119-796-141TRN CROSSTUBE, FWD
 SUPPLEMENTAL VIEW: NOMINAL WALL THICKNESS



DETAIL F
 SCALE 2X

RELEASED
 2015-11-04

APPROVED

DESIGN	AP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AP		
CHECKED	AJS	DRAWING NO.	REV. H
MFG. APPR.	JLM	D119-796-141	SHEET 6 OF 6
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	XTUBE ASSY (AW119 MKII FWD)	NTS
DATE	15.10.13	COPYRIGHT © 2014 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO36567**

Purchase Order Date 6/5/2017

PO Print Date 6/13/2017

Page Number 2 of 5

Order From : SKYSERVICE 6120 MIDFIELD ROAD MISSISSAUGA, ONTARIO L5P 1B1 CANADA	VC-SKY001	Ship To : DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CANADA
---	-----------	--

Contact Name
Vendor Phone 905-678-5636

Ship To Contact
Ship To Phone
Ship Via: Delivered
Ship Acct:

Buyer Chantal Lavoie
Customer POID
Customer Tax # 10127-2607
Terms Net 30
Currency CAD
FOB FCA - (Free Carrier)

Line Total: \$0.00

3	158481	D119-796-141 CROSSTUBE	6/16/2017	1.00	\$0.00	\$0.00
			Yes 6/16/2017			

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR
LPI AS PER ASTM 1417 LEVEL 2

Line Total: \$0.00

4	158482	D119-796-141 CROSSTUBE	6/16/2017	1.00	\$0.00	\$0.00
			Yes 6/16/2017			

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR
LPI AS PER ASTM 1417 LEVEL 2

Line Total: \$0.00

5	161771	D119-796-141 CROSSTUBE	6/16/2017	1.00	\$0.00	\$0.00
			Yes 6/16/2017			

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR
LPI AS PER ASTM 1417 LEVEL 2

Note:

6/13/2017

**skyservice****Work Order Traveler**

Sky Service F.B.O. Inc.

10105 Ryan Avenue, Dorval, Quebec, H9P 1A2

TCCA AMO 53-89 / EASA 145.7142 / BDA AMO 385

WO #: MWO32407	Customer: Dart Aerospace Ltd.	Dept: NDT YUL	Reference: PO36567
Descr:	PN:	S/N:	Qty: 1
Make:	Model:	Reg:	A/C S/N:
TSN:	CSN:	TSO:	
Task: UNSCHEDULED			Sequence: 1

Work Required:

CARRY OUT NDT ON 14 CROSSTUBES AS PER PO

6 FWD CROSSTUBES , ITEM ID# D206-667-107BL , WORK ORDERS ID# 161165, 161166, 161167, 161168, 161169, 161170

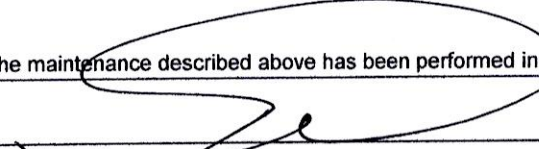
4 FWD CROSSTUBES , ITEM ID# D119-796-141 , WORK ORDERS ID# 161771, 158480, 158481, 158482

4 FWD CROSSTUBES , ITEM ID# D212-664-101 , WORK ORDERS ID# 159589, 159590, 159591, 159592

Action Taken:						Date:	Initial/Stamp:
LPI C/O IAW ASTM E-1417M-13 ***NO CRACK FOUND*** PEN. ZL-56, MPO13600, CLEANER SKC-S MPO13923 , EMU. MPO15896, DEV. MPO11715 , UV LIGHT M-20142						JUN 12 2017	 
Description	Location	P/N	Qty	Batch	S/N Off	S/N On	

8/176-13

I certified that the maintenance described above has been performed in accordance with the applicable standard of airworthiness.

Signature: 	ACA/SCA Stamp 	Date: JUN 12 2017
Name: RAFIK MELIKIAN		